

## CLAIMS

The invention claimed is:

1. A method for separation of  $\alpha$ -penta-O-galloyl-D-glucose (PGG) from a mixture of  $\alpha$ -PGG- and  $\beta$ -PGG or analogues thereof comprising the steps of:
  - a) adding water to a PGG mixture containing 50% or more  $\alpha$ -PGG and 50% or less  $\beta$ -PGG;
  - b) mixing the PGG and water to dissolve the PGG;
  - c) filtering out any undissolved particles; and
  - d) allowing the filtered solution to stand undisturbed until crystals formwherein the crystals comprise the  $\alpha$ -PGG or  $\alpha$ -PGG analogue.
2. The method of claim 1 wherein double distilled water is used in step (a).
3. The method of claim 1 wherein the water to PGG ratio is about 20 mL of water for about 1 g of PGG.
4. The method of claim 1 wherein the mixing step is done for about 5 minutes.
5. The method of claim 1 wherein the mixing step is done at an elevated temperature.
6. The method of claim 5 wherein the mixing step is done at 80°C.
7. The method of claim 1 wherein the filtering step is done using a 45  $\mu$ m filter.
8. The method of claim 1 wherein the filtered solution of step (d) is allowed kept at a temperature lower than room temperature.
9. The method of claim 1 wherein the  $\alpha$ - and  $\beta$ - analogues of PGG are selected from analogues in which the glucose of the PGG is substituted by a hexose, pentose, or tetrose.
10. The method of claim 1 wherein the  $\alpha$ - and  $\beta$ - analogues of PGG are selected from analogues in which the ring oxygen of the glucose or other hexose, pentose or tetrose is substituted by carbon, nitrogen, or sulfur.
11. The method of claim 1 wherein the  $\alpha$ - and  $\beta$ - analogues of PGG are selected from analogues in which the gallic acid portion of the PGG is substituted by other phenols.
12. The method of claim 1 wherein the purity of the  $\alpha$ -PGG or  $\alpha$ -PGG analogue is 95% or greater.
13. A method for separation of  $\beta$ -PGG or an analogue thereof from a mixture of  $\alpha$ -PGG and  $\beta$ -PGG or analogues thereof comprising the steps of
  - a) adding acetone to a mixture of PGG containing 50% or more  $\beta$ -PGG and 50% or less  $\alpha$ -PGG;
  - b) mixing the PGG and acetone to dissolve the PGG;
  - c) filtering out any undissolved particles; and
  - d) allowing the filtered solution to stand undisturbed until crystals formwherein the crystals comprise the  $\beta$ -PGG or  $\beta$ -PGG analogue.
14. The method of claim 13 wherein the acetone is added to the PGG at a ratio of about 5 mL acetone for about 1 g PGG.
15. The method of claim 13 wherein the mixing in step (b) is done for about 5 minutes.

16. The method of claim 13 wherein the mixing step (b) may be done at an elevated temperature.
17. The method of claim 16 wherein the mixing step (b) is carried out at 80°C.
18. The method of claim 13 wherein the filtering step (c) is done through filter paper.
19. The method of claim 13 wherein step (d) is done at a temperature lower than room temperature.
20. The method of claim 13 wherein the  $\alpha$ - and  $\beta$ - analogues of PGG are selected from analogues in which the glucose of the PGG is substituted by a hexose, pentose, or tetrose.
21. The method of claim 13 wherein the  $\alpha$ - and  $\beta$ - analogues of PGG are selected from analogues in which the ring oxygen of the glucose or other hexose, pentose or tetrose is substituted by carbon, nitrogen, or sulfur.
22. The method of claim 13 wherein the  $\alpha$ - and  $\beta$ - analogues of PGG are selected from analogues in which the gallic acid portion of the PGG is substituted by other phenols.
23. The method of claim 13 wherein the purity of the  $\alpha$ -PGG or  $\alpha$ -PGG analogue is 95% or greater.
24. A method for preparing single crystal  $\alpha$ -PGG or an analogue thereof comprising the steps of:
  - a) adding water to a sample of  $\alpha$ -PGG having a purity of 95% or greater;
  - b) mixing the  $\alpha$ -PGG and water to dissolve the  $\alpha$ -PGG;
  - c) filtering out any undissolved particles and placing the filtered solution in a clean vessel; and
  - d) maintaining the filtered solution undisturbed until  $\alpha$ -PGG crystals appear.
25. The method of claim 24 wherein the water is added to the  $\alpha$ -PGG at a ratio of about 100 mL of water for about 1.0 g  $\alpha$ -PGG.
26. The method of claim 24 wherein step (d) is carried out for about 15 days.
27. A method for preparing single crystal  $\beta$ -PGG comprises the steps of
  - a) adding acetone to a sample of  $\beta$ -PGG having a purity of 95% or greater;
  - b) mixing the  $\beta$ -PGG and acetone to dissolve the  $\beta$ -PGG;
  - c) filtering out any undissolved particles, placing the filtered solution in a clean vessel; and
  - d) maintaining the filtered solution undisturbed until crystals appear.
28. The method of claim 27 wherein ratio of acetone to PGG is about 50 mL of acetone per about 1.0 g  $\beta$ -PGG.
29. The method of claim 27 wherein step (d) is carried out for about 20 days.